

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problems Mailbox.**

This Page Blank (uspto)

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-179499
 (43)Date of publication of application : 07.07.1998

(51)Int.Cl.

A47L 25/00
 A47K 7/02
 A47L 17/00

(21)Application number : 08-343448
 (22)Date of filing : 24.12.1996

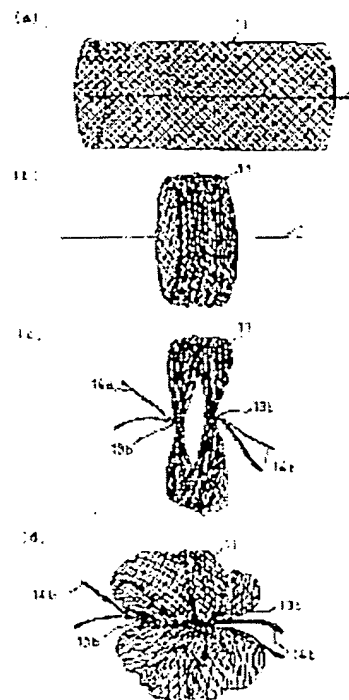
(71)Applicant : SAITO YOKO
 (72)Inventor : SAITO YOKO

(54) WASHING TOOL AND ITS PRODUCTION

(57)Abstract:

PROBLEM TO BE SOLVED: To produce a washing tool excellent in washability, durability and using feeling by a simple process and at a low cost.

SOLUTION: A cylindrical net member 11 forming mesh is contracted in the direction of its axis L to be the state of bellows. Then narrowed parts are obtained by bonding one-side areas between both end parts of the axial direction of the contracted member 11 such as two places 13b with ring-formed string members 14a and 14b. Because of its flexibility, the member 11 becomes a shape with fan-shaped elastic puffs on both sides of the parts 13b. Then the remaining part of the members 14a and 14b are gathered and bound to make the parts 13b into one body so that the member 11 may make an enveloping shape a nearly spherical body.



LEGAL STATUS

[Date of request for examination] 24.12.1996
 [Date of sending the examiner's decision of rejection]
 [Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
 [Date of final disposal for application]
 [Patent number] 3072476
 [Date of registration] 02.06.2000
 [Number of appeal against examiner's decision of rejection]
 [Date of requesting appeal against examiner's decision of rejection]
 [Date of extinction of right]

Copyright (C): 1998.2003 Japan Patent Office

* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. *** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] A washing tool characterized by having formed two or more converging sections which come to carry out contraction restraint of the 1 side field between the direction both ends of an axis of a tubed network member which used a flexible synthetic-resin material as a principal member by string member of the shape of a ring which connotes this 1 side field, and binding these two or more converging sections of both in one.

[Claim 2] A washing tool according to claim 1 characterized by a whole envelopment configuration being an abbreviation spherule.

[Claim 3] Said two or more converging sections are washing tools according to claim 1 or 2 characterized by arranging in angles [hoop direction / of said tubed network member].

[Claim 4] Said tubed network member is the washing tool of any one publication of claim 1 characterized by consisting of a network raw material made of synthetic resin which has elasticity and thermoplasticity, and coming to heat-treat the part at least - claim 3.

[Claim 5] Said tubed network member is a washing tool according to claim 4 characterized by arranging a heat-treatment portion and an unsettled portion by turns at intervals of predetermined in the direction of an axis.

[Claim 6] A washing tool of any one publication of claim 1 characterized by said tubed network member being plurality - claim 5.

[Claim 7] Said converging section is a washing tool according to claim 6 characterized by carrying out contraction restraint in one by string member of the shape of a ring which connotes these both 1 side fields, and forming both the 1 side fields of 2 tubed network member which is made to circumscribe radially said two or more tubed network members to abbreviation parallel, and adjoins mutually.

[Claim 8] Said converging section is a washing tool according to claim 6 characterized by aligning said two or more tubed network members in the direction of an axis, carrying out contraction restraint in one by string member of the shape of a ring which connotes this whole same side field, and forming a same side field of a tubed network member of these plurality.

[Claim 9] Said converging section is a washing tool according to claim 6 characterized by arranging said two or more tubed network members in the said heart so that it may become common omitting each medial axis, carrying out contraction restraint in one by string member of the shape of a ring which connotes this whole same side field, and forming a same side field of a tubed network member of these plurality.

[Claim 10] Said two or more tubed network members are washing tools of any one publication of claim 1 - claim 9 with which physical conditions of configuration fiber of a network differ, respectively.

[Claim 11] A washing tool of any one publication of claim 1 characterized by forming said two or more converging sections of a continuous one string member - claim 10.

[Claim 12] A washing tool of any one publication of claim 1 characterized by containing a solid detergent inside said network member - claim 11.

[Claim 13] A washing tool of any one publication of claim 1 which turned up the open end section of said tubed network member inside - claim 12.

[Claim 14] A manufacture method of a washing tool characterized by forming two or more converging sections which come to carry out contraction restraint of the 1 side field between the direction both ends of an axis of a tubed network member which used a flexible synthetic-resin material as a principal member by string member of the shape of a ring which connotes this 1 side field, and binding these two or more converging sections of both in one.

[Claim 15] In the condition of having let out a continuum of said tubed network member wound in the shape of a reel, respectively, and a continuum of said string member, and having made said string member penetrating in the direction of an axis inside said tubed network member A manufacture method of a washing tool according to claim 14 characterized by manufacturing said washing tool using what cut said tubed network member and said string member simultaneous by predetermined length, respectively, repeating this successively and manufacturing said two or more washing tools continuously.

[Claim 16] Said converging section is the manufacture method of a washing tool according to claim 14 or 15 characterized by restricting and forming said 1 side field by said string member after reducing said tubed network member in the direction of an axis.

[Claim 17] A cutback to the direction of an axis of said tubed network member is the manufacture method of a washing tool any one publication of claim 14 characterized by carrying out putting said tubed network member on a peripheral face of a fixture of a cylindrical shape - claim 16.

[Translation done.]

* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the washing tool used for washing of vessels, such as an organ bath, a tile, and cookware, or the body, and its manufacture method.

[0002]

[Description of the Prior Art] As a washing tool, sponge, the body brush, the towel, etc. are known from the former. in recent years, the network member made from a synthetic fiber is bundled, and the thing of various raw materials, such as a fiber cloth made to **** fine irregularity densely by the washing network which was rolled and was tied with the string member, or special spinning-and-weaving processing, and a configuration is marketed.

[0003] Moreover, it is establishing a crevice in sponge, pouring in liquid detergent there in combination with soap, enabling it to use the detergent of optimum dose, or processing the above-mentioned network member and a fiber cloth into saccate, and wrapping in bar soap. The time and effort to which a user makes separate soap attach and foam in washing tools is saved, or the technology in consideration of improvement in the convenience of users, such as what attached the strap and made the ridge easy, is also just going to be known.

[0004]

[Problem(s) to be Solved by the Invention] Although sponge is a low price, it is inferior to endurance, a feel, and a detergency in a place, and on the other hand, although the body brush is rich in the feel and the detergency, it is expensive. Thus, it is | nothing that can balance a price, endurance, a feel, and a detergency and both has the good engine performance / in elegance | conventionally | above-mentioned | and was inconvenient.

[0005] It was what the network member made from a synthetic fiber is bundled, in the case of the washing network which was rolled and was tied with the string member a network member escapes from the string member rolled and connected along with the activity, it comes out, and a configuration collapses, and becomes unusable, moreover, in the thing which establishes a crevice in sponge, pours in liquid detergent there in that to which soap was related for improvement in convenience, and enabled it to use the detergent of optimum dose In the thing which the amount of the soap used tended to become | thing | excessive, and made a saccate network member and a saccate fiber cloth connote bar soap When there was a problem that a supplement of new soap cannot be performed and also this was especially used for washing of the body, it is the bad thing of a feel by existence of softened bar soap, and the strap needed to be prepared independently.

[0006] This invention was made in view of such a conventional trouble, loses the inconvenience concerning a user's washing act, and if it is in the thing of a gestalt which connoted bar soap, aggravation of a feel and a waste of soap are inhibited or it aims at offering the washing tool which can simplify a supplement of soap, and its manufacture method.

[0007]

[Means for Solving the Problem] For this reason, two or more converging sections which come to carry out contraction restraint of the 1 side field between the direction both ends of an axis of a tubed network member which used a flexible synthetic-resin material as a principal member by string member of the shape of a ring which connotes this 1 side field are formed, these two or more converging sections of both are bound with invention concerning claim 1 in one, and a washing tool consists of it.

[0008] According to this, it curves, while each mesh of a network member swells, and it becomes the washing tool in which the whole network member had elasticity. Moreover, like a washing tool concerning invention of claim 2, if a whole envelopment configuration is constituted in an abbreviation spherule, it will be easy to get used to a user's hand. And like invention concerning claim 3, if said two or more converging sections are arranged in angles | hoop direction / of said tubed network member |, it will be finished in a beautiful configuration where the whole balance was maintained.

[0009] Moreover, if it forms so that some network raw materials | at least | made of synthetic resin which have elasticity and thermoplasticity for said tubed network member may be heat-treated like a washing tool concerning invention of claim 4 and moderate elastic force may be acquired, a configuration of a network member will be maintained and good contact pressure with the washed body will be obtained. Like invention which relates to claim 5 especially, if a heat-treatment portion and an unsettled portion are arranged by turns at intervals of predetermined in the direction of an axis of said tubed network member, a portion with moderate elasticity and a contractile portion can be prepared periodically, and formation of bellows structure will become easy.

[0010] Moreover, said tubed network member may be plural like invention concerning claim 6. In this case, said converging section makes said two or more tubed network members circumscribe to abbreviation parallel radially like invention concerning claim 7. Like invention which may carry out contraction restraint in one by string member of the shape of a ring which connotes both | this | 1 side fields, may form both the 1 side fields of 2 tubed network member which adjoins mutually, and relates to claim 8 Said two or more tubed network members are aligned in the direction of an axis, contraction restraint may be carried out in one by string member of the shape of a ring which connotes this whole same side field, and a same side field of a tubed network member of these plurality may be formed. Furthermore, like invention concerning claim 9, said two or more tubed network members are arranged in the said heart so that it may become common omitting each medial axis, contraction restraint may be carried out in one by string member of the shape of a ring which connotes this whole same side field, and a same side field of a tubed network member of these plurality may be formed.

[0011] A tubed network member of these plurality can also give change to washing sensation like invention concerning claim 10 at a detergency list as a configuration from which physical conditions, such as a size of configuration fiber of a network or a cross-section

configuration, differ, respectively. Moreover, a desired detergency or the desired touch etc. is obtained by adjusting a mixture ratio of a network member from which a class differs. Moreover, by invention concerning claim 11, in order to reduce components mark, said two or more converging sections were restricted and formed by continuous one string member. If this string member is a loop-like thing, it can hang that complementary section and can also use as a strap of business.

[0012] Moreover, in invention concerning claim 12, the need of preparing a detergent for the interior of said network member independently as a configuration which contains a solid detergent for facilities of an activity was abolished, the above -- it is more desirable to turn up the open end section of said tubed network member inside, and to have made it not project the amputation stump section to a washed field like [when there is a possibility that the amputation stump section of a tubed network member may damage a washed field in the case of which, or when there is a possibility of spoiling a feel of the skin] invention concerning claim 13.

[0013] And such a washing tool forms two or more converging sections which come to carry out contraction restraint of the 1 side field between the direction both ends of an axis of a tubed network member which used a flexibility synthetic-resin material as a principal member by string member of the shape of a ring which connotes this 1 side field like invention concerning claim 14, and these two or more converging sections of both are bound in one, and it manufactures them. In the condition of having let out a continuum of said tubed network member wound in the shape of a reel, respectively, and a continuum of said string member like [when mass-producing] invention concerning claim 15, and having made said string member penetrating in the direction of an axis inside said tubed network member. It is good to manufacture said washing tool using what cut said tubed network member and said string member simultaneous by predetermined length, respectively, to repeat this successively and to manufacture said two or more washing tools continuously.

[0014] Moreover, in invention concerning claim 16, said converging section makes restraint by string member easy as a configuration which restricts and forms said 1 side field by said string member, after reducing said tubed network member in the direction of an axis. Furthermore, in invention concerning claim 17, a cutback to the direction of an axis of an account tubed network member is considering as a configuration performed while putting said tubed network member on a peripheral face of a fixture of a cylindrical shape, fabricates said tubed network member in the shape of [of a predetermined period] bellows, and prepares appearance of a washing tool.

[0015] [Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to details with reference to a drawing. Drawing 1 shows the appearance of the washing tool in the operation gestalt of this invention, and the strap 2 for hanging is attached in the abbreviation spherule 1 to which the whole envelopment configuration makes the shape of ****. This washing tool is manufactured through a process as shown in drawing 2. That is, it reduces in the direction of axis L, and the tubed network member 11 which succeeds in the mesh shown in drawing 2 (a) is made into the shape of bellows as shown in drawing 2 (b). And string member 14a made into the shape of a ring so that two places of direction both-ends of axis 12a of the reduced tubed network member 11 and the 1 side field between 12b, for example, 13a, and 13b might be connoted like drawing 2 (c) and 14b It restricts and a converging section is formed. Although the part and number which form this converging section can be suitably changed according to the magnitude of the tubed network member 11 etc., if it arranges in angles [hoop direction / of the tubed network member 11], they will become the beautiful configuration where balance was maintained.

[0016] Consequently, the tubed network member 11 is converging section 13a and 13b like drawing 2 (d) because of that flexibility. It becomes a configuration with the swelling which has the elasticity of an abbreviation flabellate form in both sides. And string member 14a And 14b The complementary section is summarized and it is epilogue and converging section 13a. And 13b By considering as one, the envelopment configuration of the tubed network member 11 constitutes the abbreviation spherule 1 as shown in said drawing 1.

[0017] If it carries out putting the tubed network member 11 on the peripheral face of the cylinder-like fixture 15 as shown in drawing 3 in case the tubed network member 11 is reduced in the shape of bellows, since the shrinkage force of the tubed network member 11 can be controlled, it can form easily in the shape of [of a predetermined period] bellows. Thus, the tubed network member 11 is reduced in the shape of bellows, and it is string member 14a between the tubed network member 11 and the peripheral face of a fixture 15. And 14b It is converging section 13a by making the tubed network member 11 secede from a fixture 15, after letting pass and restricting. And 13b Formation can also be performed easily.

[0018] The strap 2 for hanging is said string member 14a. And 14b Converging section 13a which could form in the complementary section and was united in another string member And 13b You may form by winding and carrying out a time to the perimeter and binding to it. If a strap 2 is used, it carries out hanging in a washroom, a bathroom, a kitchen, etc., and a washing tool can be used conveniently. What used as the principal member the flexible synthetic resin which makes a mesh, for example, commercial polyethylene system resin, (the product from Mitsui Petrochemical Industries made from *****, a trade name: Neto Ron) is suitable for the network member 11. Generally at a commercial network member, they be nothing and a direction (it be call a longitudinal direction) right-angled on the medial axis line L about a tubed configuration. Since shrinkage characteristics be too strong, the product finished through the manufacturing process mentioned above become what each mesh reduced, in spite of having use the supple raw material, it will become a hard feel and the touch will worsen. So, with this operation gestalt, shrinkage characteristics and flexible **** polyethylene system resin with thermoplasticity are chosen from many raw materials, and the abbreviation spherule which has the shrinkage characteristics and the flexibility of a request [heat-treat] is formed. It also becomes possible for this to become possible [using for the network member 11 the cheap tubed network raw material currently used abundantly at the package of food, such as a mandarin orange, the negotiation etc.], consequently to reduce fabrication cost substantially.

[0019] In addition, what is necessary is just to specifically perform above-mentioned Neto Ron's heat treatment by spraying the hot blast of 60-90-degreeC about 3 to 10 seconds. By cutting out the tubed long network raw material wound in the shape of a reel to suitable length, this tubed network member 11 should be formed in both ends tubed [which has opening], should perform after that heat-treatment mentioned above, using the heat source of an iron, a dryer, etc. as pretreatment, and should have desired shrinkage characteristics and the magnitude of a mesh.

[0020] As especially shown in drawing 4, with the configuration which has arranged the heat-treatment portion 16 and the unsettled portion 17 by turns at intervals of predetermined in the direction of axis L of the tubed network member 11, the portion which has moderate elasticity by heat-treatment, and the contractile portion of network raw material original can be prepared periodically, and uniform bellows structure can be easily formed now by reducing this in said direction of axis L.

[0021] Moreover, opening 18a of tubed network member 11 judged ends and 18b Since the finer which constitutes a mesh serves as a configuration projected outside and worsens the feel of the washed bodies, such as the skin, as shown in drawing 5, opening of ends is changed into the condition of having inserted in inside. And both-ends 18a inserted in by forming bellows structure in the above-mentioned

way, and restricting this by the string member and 18b The inserted-in location is held.

[0022] Next, how to mass-produce a washing tool simple is shown in drawing 6 using the tubed long network raw material wound in the shape of [] which was mentioned above [] a reel. Reels 21 and 22a (22b) The continuum of the tubed network member 11 and string member 14a which were wound around each, 14b It lets out a continuum and they are string member 14a and 14b to the direction of axis L of the tubed network member 11 interior. In the condition of having made it penetrating, they are said tubed network member 11 and string members 14a and 14b. It cuts simultaneously by predetermined length (the inside of drawing, a dotted line M), respectively. And a washing tool is manufactured in the above-mentioned way using this. By repeating this process successively, two or more washing tools can be manufactured continuously.

[0023] Thus, the washing tool formed in the abbreviation spherule attaches a detergent to the tubed network member 11, and washes washed fields, such as the skin. Then, the bubble of a detergent is easy to foam in the mesh of the tubed network member 11, and covers it. Here, since the tubed network member 11 is a product made of flexible **** synthetic resin, while washing the skin front face of the skin effectively by suitable frictional force, it becomes possible to give a user a good feel, and since the ridge after an activity is good, cleanliness can be maintained. Moreover, a commercial scene can be provided with the tubed network member 11 which used synthetic resin as the principal member by the low price.

[0024] Moreover, as mentioned above, it is converging section 13a. And 13b Direction both-ends of axis 12a of the tubed network member 11 And 12b Ring-like string member 14a which connotes the 1 side field of a between And 14b It is carried out, for this reason, the inside to be used -- the tubed network member 11 -- string members 14a and 14b from -- escaping -- coming out -- converging section 13a And 13b It has not said that it comes loose and has high endurance.

[0025] In addition, converging section 13a prepared in the tubed network member 11 in the above-mentioned example And 13b They are separate string member 14a and 14b about each. Although it restricts and was made to form, you may restrict and form by the same one string member. For example, when the string member which makes annular [one] is used, a converging section can be formed as it is shown in drawing 7. Namely, end section 31a of the shape of a loop of the annular string member 31 which made the tubed network member 11 interior reduced in the shape of bellows penetrate in the direction of axis L It goes via the outside of the tubed network member 11, and is other end 31b of the string member 31. It lets a loop pass. Next, said end section 31a After making hard flow penetrate the tubed network member 11 interior, it goes via the outside (part which faces last time) of the tubed network member 11, and last time is said other end 31b. It lets a loop pass. And end section 31a of this string member 31 While two converging sections are formed in the bellows structure 12 by lengthening strongly, these two converging sections are combined with one. End section 31a of this string member 31 A loop can be used as a strap.

[0026] With such a configuration, three or more converging sections can be formed easily similarly, and the magnitude and the elasticity of a washing tool can be changed by adjusting the number of converging sections suitably. Since it is not necessary to connect the string member 31 and to fix and a washing tool can be easily disassembled in this case when a converging section is maintained by friction of the contact section of string members after lengthening the annular string member 31 strongly, simple, the number of converging sections is performed and a change of a location etc. can be made.

[0027] Moreover, an above-mentioned string member should just be the configuration which can all narrow down the tubed network member 11 reduced in the shape of bellows also including things, such as the shape of the shape of thread besides the shape of a string, band-like, and a chain. As a material of a string member, although animals-and-plants textiles, leather goods, a synthetic-resin product, and metal goods are not asked, corresponding to the washed field, it should be chosen suitably. Moreover, although restraint of the tubed network member 11 by the string member is based on a string member, it can choose freely a hook stop, a piece-of-Velcro stop, and other well-known conclusion means as other.

[0028] By the way, although the washing tool was manufactured using the single tubed network member with the gestalt of the above-mentioned implementation, you may manufacture not only using this but using two or more network members. For example, as shown in drawing 8 (a), the tubed network member 41 (41a-41c) of plurality (inside of drawing three) is made to circumscribe to abbreviation parallel radially, these are reduced in each direction of an axis, and it forms in the shape of bellows. And it restricts in one like drawing 8 (b) by the string member 43 (43a-43c) of the shape of a ring which connotes both field 42 (42a-42c) 1 side of two tubed network members which adjoined mutually, and a converging section 44 (44a-44c) is formed. Furthermore, a washing tool can be manufactured by connecting the complementary section of the string member 43 (43a-43c) collectively.

[0029] As shown in drawing 9 (a), the tubed network member 51 (51a-51c) of plurality (inside of drawing three) aligned in the direction of axis L is reduced in the direction of axis L, respectively, and it forms in the shape of bellows. Moreover, like drawing 9 (b) It may restrict in one by the string member 53 (53a-53b) of the shape of a ring which connotes the same side field 52 (52a-52b) whole of the tubed network member 51 (51a-51c) of these plurality, and a converging section 54 (54a-54b) may be formed.

[0030] Furthermore, as shown in drawing 10 (a), reduce the tubed network member 61 (61a-61c) of plurality (inside of drawing three) arranged in the said heart so that it may become common omitting each medial axis L in the direction of axis L, and it forms in the shape of bellows. The same side field 62 (62a-62b) of the tubed network member 61 (61a-61c) of these plurality may be restricted in one by the string member 63 (63a-63b) of the shape of a ring which connotes the whole as shown in drawing 10 (b), and a converging section 64 (64a-64b) may be formed.

[0031] If the mixture ratio of the network member from which, as for two or more tubed network members, a class differs in these cases as physical conditions, such as a size of the configuration fiber of a network, construction material, and a cross-section configuration, differ, respectively is adjusted and it is made to carry out sewing, it will become possible to obtain a desired detergency or the desired touch etc. In addition, it is also the same as when a tubed network member is plurality that all converging sections can be formed by the continuous one string member.

[0032] Moreover, as shown in the washing tool of this invention at drawing 11, it is possible to contain the solid detergent 71 to the interior through opening of the tubed network member 11. The solid detergent 71 can prevent being discharged by the exterior of the tubed network member 11, without meaning as much as possible by holding between the bellows of the reduced tubed network member 11. With the configuration which has arranged two or more tubed network members especially shown in above-mentioned drawing 10 in the said heart, if a solid detergent is contained between an inside tubed network member and a lateral tubed network member, it can prevent that hold the solid detergent 41 certainly, control the ranging behavior, avoid **** friction with a tubed network member, and the amount of the detergent used increases vainly.

[0033] The time and effort which attaches the detergent independently prepared for such the interior of a washing tool with the

configuration which contained the solid detergent at the time of washing can be saved. Moreover, since the water break after an activity is also good, the tubed network member 11 can prevent swelling of the solid detergent 56, and its amount of the detergent used does not increase vainly. When the solid detergent 41 is exhausted by activity or it has been used, it repacks and the new detergent of business can be filled up easily, and it becomes possible to carry out a continuation activity, without throwing away the tubed network member 11 by activity once.

[0034] In addition, what is necessary is just to choose the class, configuration, and number of the solid detergents contained in a tubed network member according to the magnitude of a washing tool, the object of washing, etc.

[0035]

[Effect of the Invention] As explained above, according to invention concerning claim 1 and claim 14, the whole can obtain a washing tool with elasticity at an easy fabrication process, the network member which used cheap synthetic resin as the principal member -- a cartridge - a powerful detergency can wash a washed field with the mesh of a powerful coarse mesh, and a good feel can be given to a user.

[0036] Moreover, since it restricts by the string member of the shape of a ring which connotes the 1 side field between the direction both ends of an axis of a tubed network member and the converging section is formed, it is effective in the ability to acquire high endurance so that it may not come loose, while using it. Moreover, according to invention concerning claim 2, since the envelopment configuration of the whole washing tool is an abbreviation spherule, it is effective in being easy to get used to a user's hand. For this reason, even when it is easy to slide by the detergent component, it can support certainly.

[0037] Moreover, according to invention concerning claim 3, it is effective in the ability to obtain the washing tool of the well-balanced beautiful appearance by arranging in angles [hoop direction / of a tubed network member] the converging section which was restricted by the string member and formed. Moreover, since according to invention concerning claim 4 it formed so that the network raw material made of synthetic resin which has elasticity and thermoplasticity for said network member might be heat-treated and moderate elastic force might be acquired, configuration maintenance of the network member of an abbreviation spherule is maintained, good contact pressure with the washed body is obtained, and a moderate feel and a moderate detergency are obtained.

[0038] Furthermore, according to invention concerning claim 5, the portion which has moderate elasticity by having arranged the heat-treatment portion and the unsettled portion by turns at intervals of predetermined, and a contractile portion are periodically prepared in the direction of an axis of said tubed network member, formation of bellows structure becomes easy, and uniform bellows structure can be formed. Moreover, although a washing tool is formed, since the number of network members is not asked according to invention concerning claim 6 - claim 9, the selection range of a network raw material can be enlarged, and the magnitude and density of a washing tool can be adjusted to arbitration.

[0039] Moreover, since physical conditions, such as a size of the network configuration fiber of two or more tubed network members of each or a cross-section configuration, were considered as a different configuration according to invention according to claim 10, it becomes possible to obtain a desired detergency or the desired touch etc. by adjusting the mixture ratio of the network member from which change can be given to washing sensation at a detergency list, and a class differs.

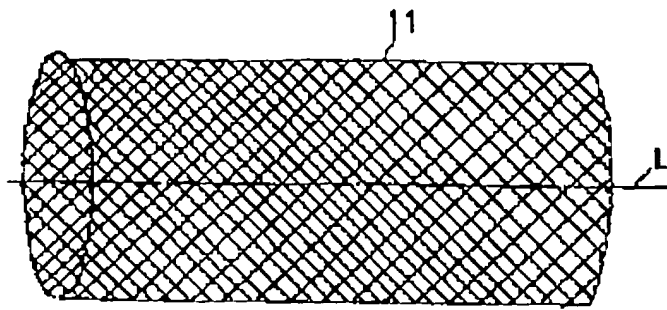
[0040] Moreover, according to invention concerning claim 11, by restricting and forming all the converging sections by the continuous one string member, components mark are reduced and it is effective in a routing decreasing. Furthermore, if all the converging sections are restricted and formed by the continuous one string member which makes annular, a converging section can be formed without connecting a string member, and a process can be simplified further. Moreover, the loop of the complementary section of a string member can be hung and it can also use as a strap of business.

[0041] Moreover, since it considered as the configuration which contains a solid detergent inside a network member according to invention concerning claim 12, there is no need of preparing a detergent independently and it can wash simple only by soaking in water or a molten bath. Moreover, since the open both ends of a tubed network member are turned up inside and it was made not to project the amputation stump section to a washed field according to invention according to claim 13, the open end section becomes smooth and there is no possibility that the amputation stump section of a network configuration member may damage a washed field.

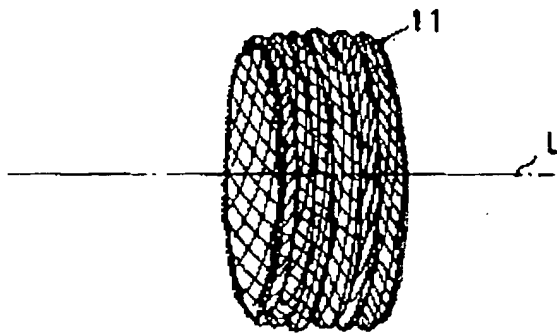
[0042] Moreover, according to invention concerning claim 15, said two or more washing tools can be manufactured continuously easily. Moreover, according to invention concerning claim 16, the process which restricts by the string member becomes easy, and it is effective in being stabilized and being able to make the washing tool of a homogeneous configuration. Moreover, since a tubed network member is reduced in the direction of an axis according to invention concerning claim 17, covering the peripheral face of the fixture of a cylindrical shape, it can form easily in the shape of [of a predetermined period] bellows, and is effective in the washing tool which has beautiful appearance being producible.

[Translation done.]

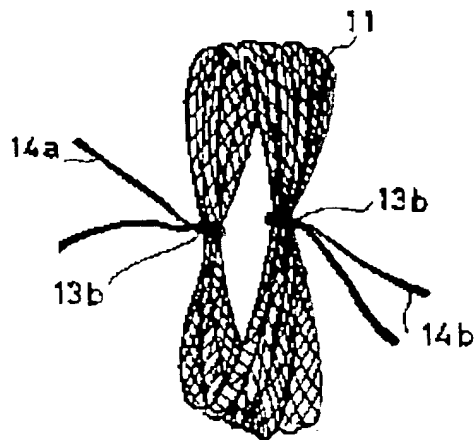
(a)



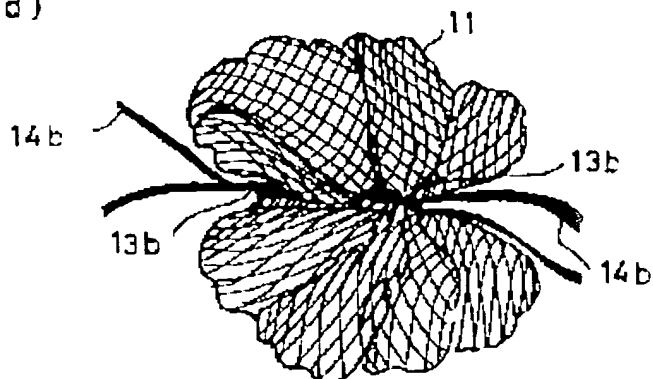
(b)



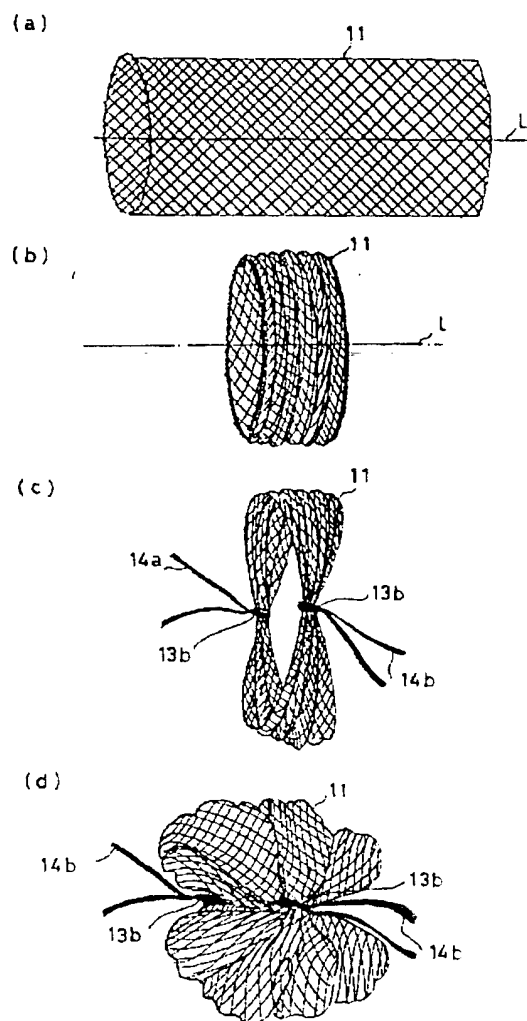
(c)



(d)

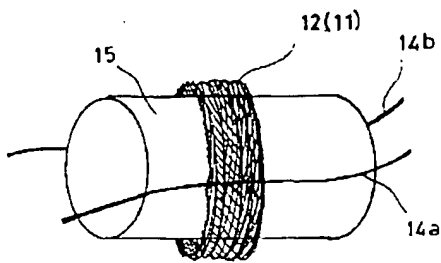


Drawing selection drawing 2



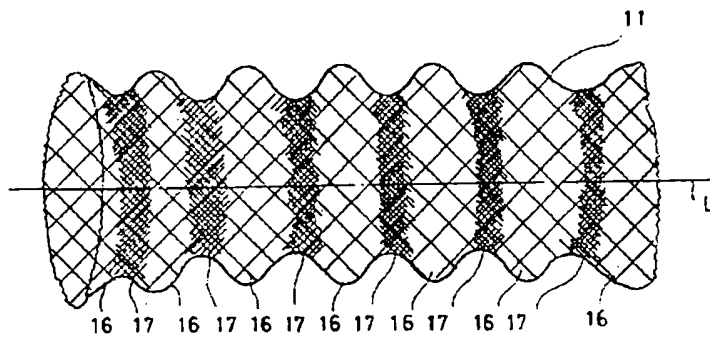
[Translation done.]

Drawing selection drawing 3



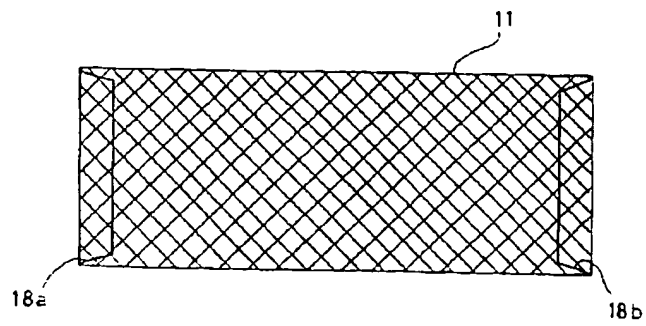
[Translation done.]

Drawing selection drawing 4



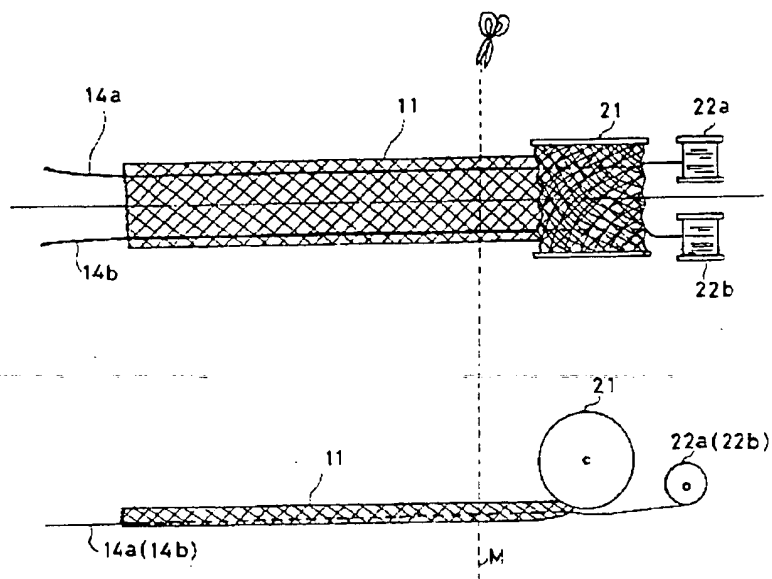
[Translation done.]

Drawing selection drawing 5



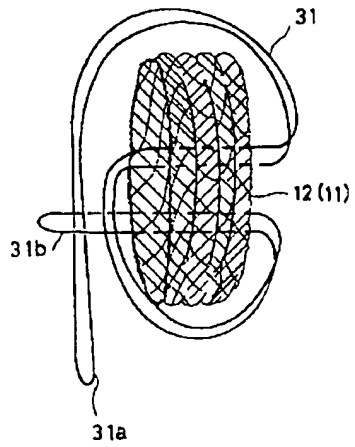
[Translation done.]

Drawing selection drawing 6



[Translation done.]

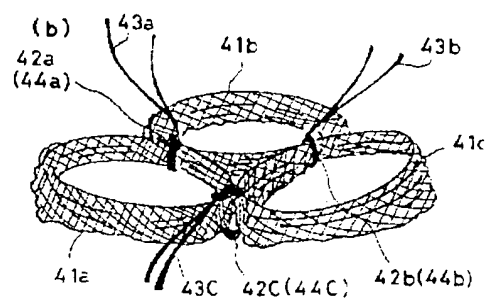
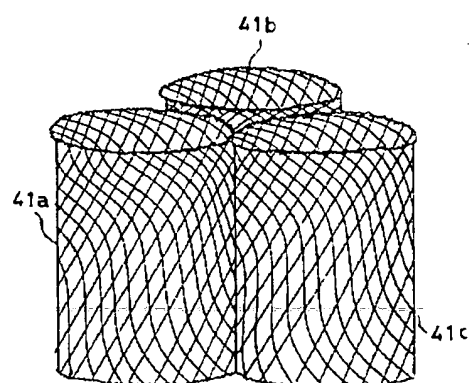
Drawing selection drawing 7



[Translation done.]

Drawing selection drawing 8

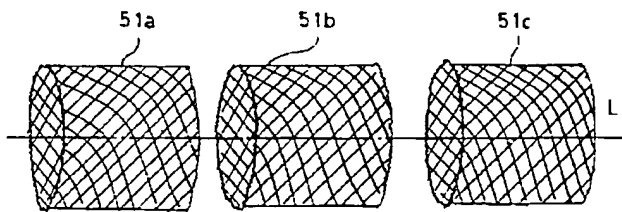
(a)



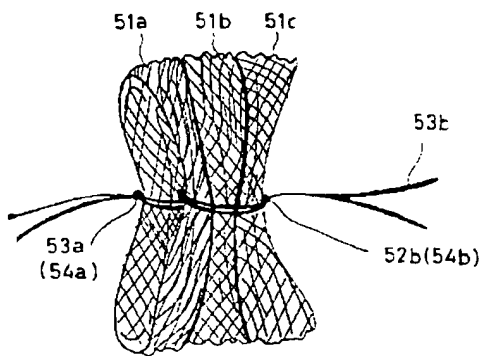
[Translation done.]

Drawing selection drawing 9

(a)



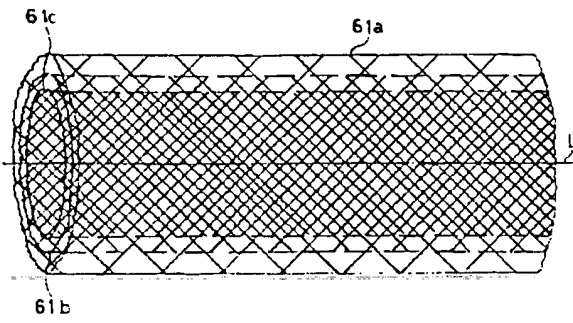
(b)



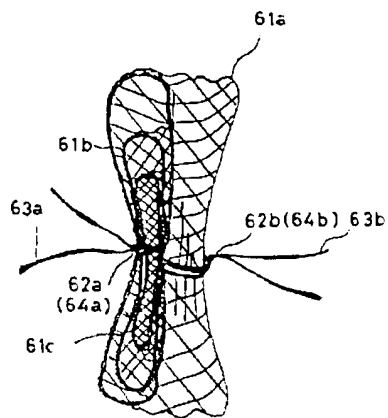
[Translation done.]

Drawing selection drawing 10

(a)

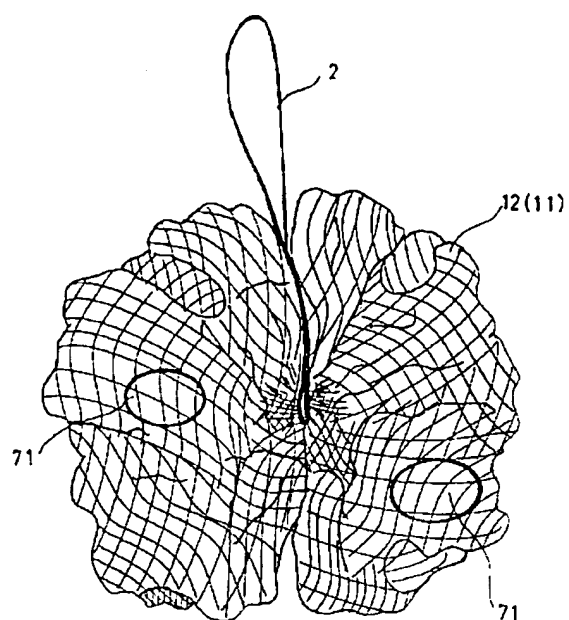


(b)



[Translation done.]

Drawing selection drawing 11



[Translation done.]

This Page Blank (uspto)